III. REMARKS

Applicants respectfully request that this application be reconsidered in view of the above amendments and the following remarks.

1. Status of the Claims

Claims 1-18 and 20 are currently pending in this application for examination on the merits.

2. Summary of the Amendments

Claim 17 and 18 have been amended to delete the term "pharmaceutical". No new matter is introduced by these amendments.

Entry of these amendments is respectfully requested.

3. Rejections Under 35 U.S.C. §112, First Paragraph

Claims 1-18 and 20 have been rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. In essence, the Examiner's rejection is based on the premise that "undue experimentation" would be required to determine which, if any, of the presently claimed compounds exhibit antibacterial activity. For the following reasons, this rejection is respectfully traversed.

To assist an examiner or reviewing court in determining whether a disclosure is sufficient to enable one of ordinary skill in the art to practice a claimed invention throughout its scope without having to engage in undue experimentation, the Court of Appeals for the Federal Curcuit has set forth the following list of eight factors for consideration: (1) the quantity of experimentation necessary; (2) the amount of direction or guidance presented; (3) the presence or absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability or unpredictability of the art; and (8) the breadth of the claims. *In re Wands*, 858 F.2d 731, 8 U.S.P.Q.2d 1400 (Fed. Cir. 1988) (citing *Ex*

parte Forman, 230 U.S.P.Q. 546, 547 (Bd. Pat. App. & Int. 1986)).

The CAFC has also indicated that "a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." *In re Wands*, 858 F.2d at 737, 8 U.S.P.Q.2d at 1404 (quoting *Ex parte Jackson*, 217 U.S.P.Q. 804, 807 (Bd. App. 1982)).

With these guidelines in mind, the issue for consideration in the present case is whether one skilled in the art could determine whether a compound of the present invention exhibits antibacterial properties without undue experimentation. In other words, are antibacterial assays routine for those skilled in the art or is some ingenuity beyond that expected of one of ordinary skill in the art required to conduct and interpret such assays? In this regard, it is important to remember that one skill in the art merely needs to be able to determine whether a compound has any antibacterial activity without undue experimentation (i.e., whether the test compounds have any utility) not whether a test compound meets all the requirements to be a commerical antibiotic drug or to compete in the marketplace with a commercial antibiotic.

In analyzing this issue, each of the *Wands* factors set forth by the CAFC needs to be carefully considered:

(1) Quantity of Experimentation Necessary: Little or no experimention would be required by one skilled in the art to determine if a compound of the present invention exhibits antibacterial properties because antibacterial assays are well-known in the art. For example, minimum inhibitory concentrations (MICs) are routinely determined in the pharmaceutical industry using the standarized microdilution broth procedures published by the NCCLS. Such assays are routine and require little or no experimentation to perform. Similarly, *in vivo* antibacterial assays are well-known in the art. For example, the mouse septecemia model and the neutropenic thigh model are routinely performed to assess the antibacterial properties of test compounds. Given that such detailed procedures are published and readily available to those skilled in the art, little or no experimentation is required by those skilled in the art to perform and intrepret these assays. Therefore, the quantity of experimentation necessay is very low.

(2) Amount of Direction or Guidance Presented In the present case, undue experimentation would not be required because a vast amount of direction and guidance on how to perform and interpret antibacterial assays is provided by the published literature. As previously noted, *in vitro* and *in vivo* antibacteral assays are published containing extensive and detailed experimental procedures. For example, NCCLS publishes standardized procedures for determining minimum inhibitory concentrations (MICs) for test compounds. Additionally, Applicants' own specification provides detailed procedures for *in vitro* and *in vivo* assays (see, page 106, line 01 to page 109, line 07). Accordingly, a vast amount of direction and guidance is available to those skilled in the art to assist them in determining whether a test compound exhibits antibacterial properties.

(3) Presence or Absence of Working Examples: Undue experimentation is also not required because Applicants' own specification contains detailed working examples for determining minimum inhibitory concentrations (page 106, line 01 to page 107, line 11), the mouse septecemia model (page 108, line 15-26) and the neutropenic thigh model (page 108, line 27 to page 109, line 07). One skilled in the art could readily following these procedures to determine if a test compound exhibits antibacterial properties.

(4) Nature of the Invention: Undue experimentation is not required because the present inventition relates to new chemical compounds and compositions not to new methods for determining whether a test compound has antibacterial properties. As such, the requisite assays are routine and do not require undue experimentaion in order to be conducted or intrepreted by those skilled in the art.

(5) State of the Prior Art: Undue experimentation is also not required because the present inventition relates to a mature, well-developed field, i.e., antibacterial agents, having ample prior art describing how to conduct and interpret the requisite asssays.

(6) Relative Skill of Those in the Art: Undue experimentation is not required because those skilled in the art are highly trained. Typically, the skilled artisan conducting antibacterial assays has either a Ph.D. in Microbiology (or a related field) or works under the direction of a Ph.D. scientist. Accordingly, in view of this level of skill, the well-known, published assays for determining antibacterial properties would be routine for those skilled in the art.

(7) Predictability or Unpredictability of the Art: In the present case, the assays used by those skilled in the art to determine if a test compound exhibits antibacterial properties are higly predictable and reproduceable. In other words, the results obtained by one skilled artisan can be easily and predictably reproduced by another skilled artisan using the standard asssys published in the literature. Therefore, no undue experimentation is required to conduct such assays.

In this regard, the Examiner has indicated that structure/activity relationships of antibacterial compounds can be unpredictable (pages 4-5 of the Office Action). The point, however, is that the assays for determining antibacterial properties are routine and predictable and therefore, no undue experimentation is required by those skilled in the art to conduct such assays.

With regard to the Examiner's assertion that some that structure/activity relationships of antibacterial compounds can be unpredictable, the Examiner has given no evidence why he believes the particular glycopeptides of the present invention would not be expected to exhibit antibacterial properties. It is always likely that some compounds in a given structural class will not obey the presently understood structure/activity relationships for that class, but that does not mean that such compounds are likely to be completely devoid of all activity. Moverover, assuming for the sake of argument that a few of the claimed compounds exhibited absolutely no antibacterial properties, it is well-established that some inoperative embodiments are permitted . See *Atlas Powder Co. v. E. I. duPont de Nemours & Co.*, 750 F.2d 1569, 224 U.S.P.Q. 409 (Fed. Cir. 1984).

(8) Breadth of the Claims: In the presently claimed invention, all of the claimed compounds have a common glycopeptide core structure. Accordingly, no undue experimentation would be required since such compounds can be tested using routine antibacterial assays well-known and previously employed for other known glycopeptide antibiotics.

Thus, in summary, when each of the *Wands* factors are carefully considered, it is readily apparent that no undue experimentation would be required to determine whether the compounds of the present invention exhibit antibacterial properties. For many, many years, the pharmaceutical industry has been screening test compounds to ascertain whether such compounds exhibit antibacterial properties. Such testing is now routine in the industry and does

not require undue experimentation. Accordingly, Applicants respectfully suggest that the rejection of Claims 1-18 and 20 under 35 U.S.C. §112, first paragraph, is in error and withdrawal of this rejection is respectfully requested.

The Examiner has also indicated that the term "pharmaceutical composition" carries with it the implied assertion of therapeutic efficacy. While not agreeing the Examiner, Applicants have amended Claims 17 and 18 to delete the term "pharmaceutical" before "composition". Applicants have not amended the claims to delete the terms "pharmaceutically acceptable salts" or "pharmaceutically acceptable carrier" since these terms do not in any way imply therapeutic efficacy, i.e., they merely define a subset of salts and carriers which are not biologically harmful. Accordingly, in view of these amendments to the claims, this aspect of the rejection under 35 U.S.C. §112, first paragraph, may also be withdrawn.

4. Request for a Telephone Interview

Applicants respectfully request a telephone interview with the Examiner to discuss the pending rejections and this response. The Examiner is respectfully requested to telephone the undersigned attorney at (650) 808-6406 to schedule a mutually convenient time for the interview. A PTO Form PTOL-413A is submitted herewith.

Consideration of the above amendments and remarks is respectfully requested. Applicants believe this application is now is condition for allowance and a notice to that effect is respectfully requested. Should there be any questions concerning this response, the Examiner is requested to telephone the undersigned attorney at (650) 808-6406.

Respectfully submitted,

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Date: December 19, 2003

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